

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A powder filling device comprising:

a measuring tank having a powder discharge port; [[and]]

a filling amount control unit disposed near the powder discharge port; and

an auxiliary container having an opening disposed on an underside of the powder discharge port of the measuring tank which faces downward,

wherein a powder externally delivered into the measuring tank is discharged from the powder discharge port into a powder filling container disposed on an underside of the auxiliary container while a filling amount of the powder is controlled by the filling amount control unit, and the powder is temporarily dropped to the auxiliary container, and further dropped to the powder filling container so that the powder filling container is filled up with the powder,

wherein the filling amount control unit includes a filter material which passes a gas and does not pass the powder, the powder being drawn to the filter material via a gas suction unit communicating with the filling amount control unit, so that the filling amount of the powder is controlled according to a degree of suction of the powder by the gas suction unit,

wherein the filter material is fixed to close a through hole formed in a tubular body part of the auxiliary container, and

wherein a wall, which does not have a gas leakage, is disposed around an outside of the filter material so that a space part is formed.

Claim 2 (Currently Amended): The powder filling device according to claim 1 wherein the auxiliary container is [[of]] a conical ~~funnel-like type~~ funnel shape, and is

arranged so that ~~[[a]]~~ the tubular body part of the auxiliary container having an outlet is inserted into an opening of the powder filling container.

Claim 3 (Original): The powder filling device according to claim 2 wherein an angle of a conical top part of the auxiliary container is in a range of 50 to 70 degrees.

Claim 4 (Original): The powder filling device according to claim 1 wherein the powder filling device further comprises a rising/falling unit provided for moving up and down the auxiliary container.

Claim 5 (Original): The powder filling device according to claim 1 wherein the filling amount control unit is provided with at least three filling amount control functions of free powder discharging, powder discharge stopping, and partial powder discharging.

Claim 6 (Original): The powder filling device according to claim 1 wherein the measuring tank is formed with a cylinder body which extends from a position where the filling amount control unit is disposed to a position of the powder discharge port.

Claim 7 (Currently Amended): The powder filling device according to claim 1 wherein the filling amount control unit ~~comprises~~ includes an elastic body ring fixed to the powder discharge port of the measuring tank, and a discharge control unit which controls discharging of the powder from the powder discharge port,

wherein the discharge control unit ~~comprises~~ includes a discharge amount control member which is mounted on a discharge control lever which is moved up and down within the measuring tank, and

wherein the discharge amount control member ~~comprises~~ includes a conical-shape member which opens and closes the powder discharge port by separation of the conical-shape member from the powder discharge port and insertion of the conical-shape member to the powder discharge port.

Claim 8 (Original): The powder filling device according to claim 7 wherein a degree of opening/closing of the powder discharge port is adjusted by a degree of insertion of the conical-shape member to an opening of the elastic body ring which depends on a degree of an up/down movement of the discharge control lever within the measuring tank.

Claims 9 and 10 (Canceled)

Claim 11 (Currently Amended): The powder filling device according to claim [[9]] 1 wherein the filter material is formed in a twill weave.

Claim 12 (Currently Amended): The powder filling device according to claim 1 ~~wherein~~ further comprising a powder fluidization hopper [[which]] that is connected with the measuring tank ~~is provided, and,~~

wherein, after the powder in the powder fluidization hopper is delivered to the measuring tank temporarily, the powder in the measuring tank is delivered to the powder filling container.

Claim 13 (Original): The powder filling device according to claim 12 wherein a powder outlet of the powder fluidization hopper and a powder inlet of the measuring tank communicate with each other through a connecting tube.

Claim 14 (Currently Amended): The powder filling device according to claim 12 wherein the powder fluidization hopper comprises an inclined inside wall portion, and the powder inside the powder fluidization hopper is sent to ~~[[the]]~~ a powder outlet by the inclined inside wall portion.

Claim 15 (Currently Amended): The powder filling device according to claim 12 wherein the powder fluidization hopper comprises a powder fluidization unit, and the powder in the powder fluidization hopper is fluidized with ~~[[a]]~~ the gas sent from the powder fluidization unit, and the fluidized powder is sent to the measuring tank.

Claim 16 (Currently Amended): The powder filling device according to claim 15 wherein the powder fluidization unit is provided with a gas introducing pipe attached thereto, and the gas introducing pipe introduces a pressurized gas to a porous body which has a ~~number of~~ fine holes for spouting ~~[[a]]~~ the gas, and the fine holes communicate with each other inside the porous body.

Claim 17 (Original): The powder filling device according to claim 15 wherein a plurality of powder fluidization units are provided, and each powder fluidization unit is provided with a gas introducing pipe attached thereto.

Claim 18 (Original): The powder filling device according to claim 14 wherein the powder fluidization unit is disposed at the inclined inside wall portion.

Claim 19 (Currently Amended): The powder filling device according to claim 13 wherein the powder fluidization unit is provided with a gas introducing pipe attached thereto, and

wherein the connecting tube has a downward inclination such that the powder fluidized with the gas sent from the gas introducing pipe is delivered from the powder fluidization ~~hopper~~ hopper to the measuring tank through the connecting tube.

Claim 20 (Original): The powder filling device according to claim 12 wherein at least one of the powder fluidization hopper and the measuring tank is provided with a pressure control unit which controls an internal pressure of the at least one of the powder fluidization hopper and the measuring tank.

Claim 21 (Original): The powder filling device according to claim 1 wherein a filling powder weight managing unit is provided for managing the filling amount of the powder to the powder filling container.

Claim 22 (Original): The powder filling device according to claim 21 wherein the filling powder weight managing unit comprises a computation processing unit which computes a filled-up powder weight based on an empty weight of the powder filling container on a load cell and a gross weight of the powder filling container which is filled up with the powder.

Claim 23 (Currently Amended): The powder filling device according to claim 12 ~~wherein~~ further comprising a powder feed hopper ~~[[which]]~~ that supplies the powder to the powder fluidization hopper ~~is provided, and,~~

wherein a leading edge of a cylindrical part of the powder feed hopper where the powder is supplied is arranged so that the leading edge is buried in a surface portion of a powder layer of the powder fluidization hopper.

Claim 24 (Withdrawn - Currently Amended): A powder filling method which fills up a powder filling container with a powder using a powder filling device comprising a measuring tank having a powder discharge port and a filling amount control unit disposed near the powder discharge port, and an auxiliary container having an opening disposed on an underside of the powder discharge port of the measuring tank which faces downward, the powder filling method comprising:

providing the measuring tank;

providing the auxiliary container;

providing the filling amount control unit;

disposing the powder filling container on an underside of the auxiliary container;

discharging [[a]] the powder, which is externally delivered into the measuring tank, from the powder discharge port into the powder filling container while a filling amount of the powder is controlled by the filling amount control unit;

temporarily dropping the powder in the auxiliary container so that a gas existing between particles of the powder within the auxiliary container is freely discharged; [[and]]

further dropping the powder in the powder filling container so that the powder filling container is filled up with the powder;

passing a gas and not passing the powder via a filter material of the filling amount control unit, the powder being drawn to the filter material via a gas suction unit communicating with the filling amount control unit, so that a filling amount of the powder is controlled according to a degree of suction of the powder by the gas suction unit; and

fixing the filter material of the filling amount control unit to close a through hole
formed in a tubular body part of the auxiliary container, and
providing a wall which does not have a gas leakage around an outside of the filter
material so that a space part is formed.

Claim 25 (Withdrawn): The powder filling method according to claim 24 wherein the filling amount control unit is provided with at least three filling amount control functions of free powder discharging, powder discharge stopping, and partial powder discharging.

Claim 26 (Withdrawn): The powder filling method according to claim 24 wherein the powder filling device comprises a powder fluidization hopper which is connected with the measuring tank and has a powder fluidization unit, and the powder in the powder fluidization hopper is fluidized, and the fluidized powder is sent to the measuring tank

Claim 27 (Withdrawn): The powder filling method according to claim 26 wherein an internal pressure of at least one of the powder fluidization hopper and the measuring tank control is controlled during a filling operation of the powder, before the filling operation, and/or after the filling operation.

Claim 28 (Withdrawn): The powder filling method according to claim 24 wherein the powder filling device comprises a filling powder weight managing unit which has a computation processing unit, and a filled-up powder weight is computed based on an empty weight of the powder filling container and a gross weight of the powder filling container which is filled up with the powder.

Claim 29 (Withdrawn): The powder filling method according to claim 28 wherein an initial filling weight of the powder is inputted and the inputted initial filling weight is changed by using the computation processing unit.

Claim 30 (Withdrawn - Currently Amended): The powder filling method according to claim 24 wherein a powder in a powder fluidization hopper is always made in a fluidized state, and

wherein a weight of the powder filling container itself is measured, so that a process which disposes the powder filling container on the measuring tank and fills up the powder filling container with the powder of a given amount is repeatedly performed to produce a plurality of powder filling containers each filled up with the powder.

Claim 31 (Withdrawn): The powder filling method according to claim 24 wherein a weight of the whole powder filling container is measured before and after the powder filling, and a filling amount of the powder is regulated by using the filling amount control unit.

Claim 32 (Currently Amended): A powder filling device comprising:
a measuring tank having a powder discharge port and a filling amount control unit disposed near the powder discharge port; and
an auxiliary container having a gas permutation unit disposed on an underside of the powder discharge port of the measuring tank which faces downward,
wherein a powder externally delivered into the measuring tank is discharged from the powder discharge port into a powder filling container disposed on an underside of the auxiliary container while a filling amount of the powder is controlled by the filling amount control unit, and the powder is temporarily dropped to the auxiliary container, and further

dropped to the powder filling container so that the powder filling container is filled up with the powder,

wherein the filling amount control unit includes a filter material which passes a gas and does not pass the powder, the powder being drawn to the filter material via a gas suction unit communicating with the filling amount control unit, so that the filling amount of the powder is controlled according to a degree of suction of the powder by the gas suction unit,

wherein the filter material is fixed to close a through hole formed in a tubular body part of the auxiliary container, and

wherein a wall, which does not have a gas leakage, is disposed around an outside of the filter material so that a space part is formed.

Claim 33 (Currently Amended): The powder filling device according to claim 32 wherein the auxiliary container is of a conical ~~funnel-like type~~ funnel shape, a leading edge of the conical ~~funnel-like~~ funnel-shaped auxiliary container ~~[[is]]~~ being provided with a cylindrical body having a powder outlet and being inserted into an opening of the powder filling container, and a cone bottom of the conical ~~funnel-like~~ funnel-shaped auxiliary container is provided with an opening part in which the powder discharge port of the measuring tank is inserted.

Claim 34 (Currently Amended): The powder filling device according to claim 33 wherein the gas permutation unit is provided in the conical ~~funnel-like~~ funnel-shaped auxiliary container, and the gas permutation unit comprises a gas ventilating pipe which is disposed and fixed to extend from a position near the powder outlet of the auxiliary container to an upper part of the auxiliary container.

Claim 35 (Original): The powder filling device according to claim 34 wherein the gas ventilating pipe is formed integrally with the auxiliary container.

Claim 36 (Original): The powder filling device according to claim 33 wherein an angle of a conical top part of the auxiliary container is in a range of 50 to 70 degrees.

Claim 37 (Original): The powder filling device according to claim 32 wherein the powder filling device further comprises a rising/falling unit provided for moving up and down the auxiliary container.

Claim 38 (Original): The powder filling device according to claim 32 wherein the filling amount control unit is provided with at least three filling functions of free powder discharging, powder discharge stopping, and partial powder discharging.

Claim 39 (Currently Amended): The powder filling device according to claim 32 wherein the measuring tank is formed with ~~[[a]]~~ the tubular body which extends from a position where the filling amount control unit is disposed to a position of the powder discharge port.

Claim 40 (Currently Amended): The powder filling device according to claim 32 wherein the filling amount control unit ~~comprises~~ includes an elastic body ring fixed to the powder discharge port of the measuring tank, and a discharge control unit which controls discharging of the powder from the powder discharge port,

wherein the discharge control unit ~~comprises~~ includes a discharge amount control member which is mounted on a discharge control lever which is moved up and down within the measuring tank, and

wherein the discharge amount control member ~~comprises~~ includes a conical-shape member which opens and closes the powder discharge port by separation of the conical-shape member from the powder discharge port and insertion of the conical-shape member to the powder discharge port.

Claim 41 (Original): The powder filling device according to claim 40 wherein a degree of opening/closing of the powder discharge port is adjusted by a degree of insertion of the conical-shape member to an opening of the elastic body ring which depends on a degree of an up/down movement of the discharge control lever within the measuring tank.

Claims 42 and 43 (Canceled)

Claim 44 (Currently Amended): The powder filling device according to claim ~~[[42]]~~ 32 wherein the filter material is formed in a twill weave.

Claim 45 (Currently Amended): The powder filling device according to claim 32 ~~wherein further comprising~~ a powder fluidization hopper ~~which is connected with the measuring tank is provided, and,~~

wherein, after the powder in the powder fluidization hopper is delivered to the measuring tank temporarily, the powder in the measuring tank is delivered to the powder filling container.

Claim 46 (Currently Amended): The powder filling device according to claim 45 wherein the powder fluidization hopper comprises an inclined inside wall portion, and the powder inside the powder fluidization hopper is sent to ~~[[the]]~~ a powder outlet by the inclined inside wall portion.

Claim 47 (Original): The powder filling device according to claim 45 wherein the powder fluidization hopper comprises a powder fluidization unit, and the powder in the powder fluidization hopper is fluidized with a gas sent from the powder fluidization unit, and the fluidized powder is sent to the measuring tank.

Claim 48 (Currently Amended): The powder filling device according to claim 47 wherein the powder fluidization unit is provided with a gas introducing pipe attached thereto, and the gas introducing pipe introduces a pressurized gas to a porous body which has a ~~number of~~ fine holes for spouting a gas, and the fine holes communicate with each other inside the porous body.

Claim 49 (Currently Amended): The powder filling device according to claim ~~[[47]]~~ 46 wherein the powder fluidization unit is disposed at the inclined inside wall portion.

Claim 50 (Currently Amended): The powder filling device according to claim 45 wherein a powder outlet of the powder fluidization hopper and a powder inlet of the measuring tank communicate with each other through a connecting tube,
wherein the powder fluidization unit is provided with a gas introducing pipe attached thereto, and

wherein the connecting tube has a downward inclination such that the powder fluidized with the gas sent from the gas introducing pipe is delivered from the powder fluidization ~~hopper~~ hopper to the measuring tank through the connecting tube.

Claim 51 (Original): The powder filling device according to claim 32 wherein a filling powder weight managing unit is provided for managing the filling amount of the powder to the powder filling container.

Claim 52 (Original): The powder filling device according to claim 51 wherein the filling powder weight managing unit comprises a computation processing unit which computes a filled-up powder weight based on an empty weight of the powder filling container on a load cell and a gross weight of the powder filling container which is filled up with the powder.

Claim 53 (Currently Amended): The powder filling device according to claim 45 ~~wherein further comprising~~ a powder feed hopper ~~[[which]]~~ that supplies the powder to the powder fluidization hopper ~~is provided, and,~~

wherein a leading edge of a cylindrical part of the powder feed hopper where the powder is supplied is arranged so that the leading edge is buried in a surface portion of a powder layer of the powder fluidization hopper.

Claim 54 (Currently Amended): ~~A funnel-like~~ The powder filling device according to claim 1 wherein the auxiliary container ~~wherein the~~ is a funnel-shaped auxiliary container including a gas permutation unit is provided for use in the powder filling device according to claim 32.